

What is claimed is:

Sub A' 14. A method for manufacturing carbon/silicon-carbide composite comprising the steps of:

- 5 1) hardening a stacked carbon/phenolic preform;
- 2) carbonizing the phenolic resin and heat processing the preform until the temperature reaches at 2300°C;
- 3) infiltrating and sintering liquid metal silicon between the temperature of 1400°C and 1800°C; and
- 10 4) inducting a compound including SiO_2 to gas phase and ultra-high heat processing the compound while forming an anti-oxidation layer on surface within temperature range of 2000°C~2700°C.

2. The method according to claim 1, wherein the carbon/phenolic

15 preform is one of those preform made by press molding, preform made by internal and external compression in tape wrapping, 3 dimensional preform made by sewing the 2 dimensional fabrics with thermal resistant fiber, or preform made by involute method.

20 3. The method according to claim 2, wherein the fiber used for sewing is one of carbon fiber, quartz fiber, silica fiber, or tungsten line.

4. The method according to claim 1, wherein the carbonization, heat processing, and ultra-high heat processing are performed at the same time in the

25 step 2), and the step 4) is not performed.

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Sub A²

5. The method according to either claim 1 or claim 4, wherein a discharge passage of dissolute gas is made by making holes on the hardened test piece in the step 2).

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6. The method according to claim 5, wherein the discharge passage is made by making holes of 0.5mm~1.5mm diameter with 5mm~20mm interval if the hardened test piece is rectangular box shape.

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7. The method according to claim 5, wherein the discharge passage is made by making holes of 0.5mm~1.5mm diameter with 5mm~20mm interval if the hardened test piece is hollow cylinder shape.

Sub A³

8. The method according to either claim 1 or claim 4, wherein graphite and coke powder are put into a graphite box with a hole and wrap up the entire surface of the test piece as thick as 1.5 times of maximum thickness of the test piece when carbonization and heat processing are performed in the step 2).

9. The method according to either claim 1 or claim 4, wherein high purity metal silicon of 98%~99.9% silicon purity is used as 110%~130% weight comparing to that of carbonized product.

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Sub A⁴

10. The method according to either claim 1 or claim 4 further comprising a step of coating boron nitride compound composed of 70~80% BN, 10~20% acetone, and 0~10% water on the surface of test piece after the step 3) is

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finished.

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